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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/623,828	11/30/2000	Fabien Schweighoffer	50146/004002	9055

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EXAMINER	
SIEW, JEFFREY	

ART UNIT	PAPER NUMBER
1637	16

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/623,828	Applicant(s) SCHWEIGHOFFER ET AL.	
	Examiner Jeffrey Siew	Art Unit 1656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 June 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *58-93* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *58-93* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The specification contains nucleotide sequences not identified by the appropriate SEQ ID NO identifiers (see page 16 line 20-23 & page 48 line 34).

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 60-92 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-25 of U.S. Patent No. 6,251,590 in view of Chee et al (US 5,837,832 Nov. 17, 1998).

Claims 60-92 are drawn to product arrays of nucleic acids to exon or introns or exon-exon, intron intron junction in which the nucleic acids are formed by hybridizing RNA from a sample wherein in at least sequence is partially known with cDNA from a second sample and identifying from hybrids the unpaired regions from differential splicing.

Claims 1-25 to specific sequences on biological chips.

Chee et al teach oligonucleotide probes for detecting sequences that are identical to or different from specific reference sequence (see whole document esp. abstract). They teach probes to CFTR 10 exon (see Figure 7).

One of ordinary skill in the art would have been motivated to combine the array technology of Chee et al with the method of claims of US6,251,590 in order to identify the multiple nucleic acid sequences that exhibited differential splicing. It would have been prima facie obvious to apply nucleic acids of unpaired regions in Chee et al's array for high throughput capture and detection.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 60-63 & 72-93 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The product claims 72-90 are drawn to nucleic acids which retain or spliced in cell treated reference material. Claims 90-93 are drawn to nucleic acids

that hybridize to spliced sequences. The specification discloses methods of obtaining nucleic acids that corresponded to spliced regions. The product claims however recite a broad and widely varying genus, the examiner must evaluate any necessary common attributes or features. Although the specification has a working example Grb2 gene spliced forms, the specification proposes to discover other members of the genus by using the qualitative screening method There is no description of all the possible varying spliced exon, introns and junctions. The general knowledge in the art concerning spliced variants does not provide any indication of how the structure of one spliced variant within a single gene would be representative across all genes in all organisms. The nature of spliced genes is that they are variant structures and the present state of the art the structure of one does not provide guidance to the structure of others. The common attributes of the genus are not described. The mere recitation of exon , intron or junctions of spliced variants is not provide the requisite level of description. One of skill in the art would conclude that applicant was not in possession of the claimed genus because a description of only minimal number of this genus is not representative of the variants of the genus and is sufficient to support the claim.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 60-63 & 72-90 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A) Claims 60-63 & 72-90 are indefinite. It is unclear as to what properties the nucleic acids are to possess other than hybridization to exon or intron or junctions. It is unclear as to limitation the language treatment by reference toxic compound would impart on a product claim. Applicant is reminded that the claims are drawn to product claims. While the claims recite method like steps of obtaining such nucleic acids, it is unclear as to what properties such nucleic acids would possess. It is unclear what would distinguish from the art from other prior art methods of construction.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 58 is rejected under 35 U.S.C. 102(b) as being anticipated by Chee et al (US 5,837,832 Nov. 17, 1998).

Chee et al teach oligonucleotide probes for detecting sequences that are identical to or different from specific reference sequence (see whole document esp. abstract). They teach probes to CFTR 10 exon (see Figure 7).

Claim Rejections - 35 USC § 103

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Siddique et al (US6,268,170 July 31, 2001) in view of Chee et al (US 5,837,832 Nov. 17, 1998).

Siddique et al teach the use of oligonucleotides in the determination of intron exon junctions (se col. 5 line 60-col.6 line 5).

Siddique et al do not teach a solid support.

Chee et al teach oligonucleotide probes for detecting sequences that are identical to or different from specific reference sequence (see whole document esp. abstract). They teach probes to CFTR 10 exon (see Figure 7).

One of ordinary skill in the art would have been motivated to combine the array technology of Chee et al with the oligonucleotides in order to identify the multiple junctions. It would have been prima facie obvious to apply nucleic acids of unpaired regions in Chee et al's array for high throughput.

6. Claims 61-63, 65-70, 90, 91 & 92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huo et al (US5,922,535 July 13, 1999) view of Chee et al (US 5,837,832 Nov. 17, 1998).

Huo et al teach the identification of different samples from multiple nucleic acid populations (see whole doc. esp. figure 2). They teach alternative splicings may be seen in tumors and genetic diseases (see col. 1 lines 1-10 & col. 1 line 57). T hey teach

Huo et al do not teach a solid support.

Chee et al teach using multiple oligonucleotide probes for detecting sequences that are identical to or different from specific reference sequence (see whole document esp. abstract). They teach probes to CFTR 10 exon (see Figure 7).

One of ordinary skill in the art would have been motivated to combine the array technology of Chee et al with the oligonucleotides in order to identify the multiple junctions. It would have been prima facie obvious to apply nucleic acids of spliced regions in Chee et al's array for high throughput.

Moreover, it would have been prima facie obvious to repeat the method steps of Huo et al in order to detect different spliced variants.

7. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huo et al (US5,922,535 July 13, 1999) view of Chee et al (US 5,837,832 Nov. 17, 1998) in further view of Sidransky (US5,908,920 June 1, 1999).

The teachings and suggestions of Huo et al and Chee et al are described previously.

Huo et al do not each pre-mRNA splicing.

Sidransky teach that pre-mRNA splicing in eukaryotes and are alternatively spliced in different cell types or at different times during development (see col. 3 lines 10-15).

One of ordinary skill in the art would have been motivated to apply Sidransky teachings of pre-mRNA splicing to the combined invention of Huo et al and Chee et al in order to study the different alternative splicings in pre-mRNA. Sidransky et al teach that pre-mRNA splicing is important in tissue specific gene expression. It would have been prima facie obvious to apply Sidransky et al's teachings of pre-mRNA splicing to Huo et al's method of analyzing splice variants in order elucidate the gene expression of cells during development.

7. Claim 71 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huo et al (US5,922,535 July 13, 1999) view of Chee et al (US 5,837,832 Nov. 17, 1998) in further view of Korneluk et al (US6,107,088 August 22, 2000).

The teachings and suggestions of Huo et al and Chee et al are described previously.

Huo et al do not each apoptosis.

Korneluk et al teach XAF nucleic acid sequence involved in apoptosis (see whole document esp. abstract). They also teach the identification of splice variants allow study of XAF biological activity in apoptosis associated cellular events.

One of ordinary skill in the art would have been motivated to apply Korneluck teachings of XAF splicing to the combined invention of Huo et al and Chee et al in order to study the different alternative splicings of XAF. It would have been prima facie obvious to apply XAF alternative splicings to Huo et al's method of analyzing splice variants in order elucidate the gene expression of cells during apoptosis.

8. Claim 93 is rejected under 35 U.S.C. 103(a) as being unpatentable over Huo et al (US5,922,535 July 13, 1999) view of Chee et al (US 5,837,832 Nov. 17, 1998) in further view of Ludwig (US5,484,702 Jan. 16, 1996).

The teachings and suggestions of Huo et al and Chee et al are described previously.

Huo et al do not teach transformation.

Ludwig teach library transformation of colonies onto filters (see col. 1lines 17-62).

One of ordinary skill in the art would have been motivated to apply Ludwig et al's teaching to Huo et al and Chee et al in order to screen and amplify the desired nucleic acid sequence as determined by Huo et al's method. As it was well known in the art at the time of the invention was made to transform cells to store and amplify desired sequences within reproducible vectors, it would have been prima facie obvious to apply the unique splicing sequences from Huo et al's into Ludwig et al's transformation method to create a library for future amplification.

SUMMARY

9. No claims allowed.

CONCLUSION

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Siew whose telephone number is (703) 305-3886 and whose e-mail address is Jeffrey.Siew@uspto.gov. However, the office cannot guarantee security through the e-mail system nor should official papers be transmitted through this route. The examiner is on flex-time schedule and can best be reached on weekdays from 6:30 a.m. to 3 p.m. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Gary Benzion, can be reached on (703)-308-1119.

Any inquiry of a general nature, matching or filed papers or relating to the status of this application or proceeding should be directed to the Monica Graves for Art Unit 1637 whose telephone number is (703)-306-2938.

Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Center numbers for Group 1600 are Voice (703) 308-3290 and Before Final FAX (703) 872-9306 or After Final FAX (703) 30872-9307.

Jeffrey Siew
JEFFREY SIEW
PRIMARY EXAMINER

August 24, 2002